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Title: Bronchoscopy and endobronchial biopsies in children: Useful or not?

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Body: INTRODUCTION: Bronchoscopy and endobronchial biopsies are diagnostic tools in the evaluation of difficult asthma and other paediatric airway diseases. The yield of these procedures in clinical practice is uncertain. Therefore our aim was to evaluate if bronchoscopy and endobronchial biopsies change management. METHODS: Retrospectively we collected data on diagnosis and treatment before and after bronchoscopy in all children undergoing bronchoscopy with endobronchial biopsies between 0 and 18 yrs. Difficult asthma was defined as uncontrolled asthma despite high dose ICS dose and LABA. In endobronchial biopsies reticular basement membrane (RBM) thickness was measured. RESULTS: Of the 74 children (37 male, mean age 7.8 yrs), 26 had asthma and 13 had difficult asthma. The diagnosis of children undergoing bronchoscopy changed in 31.3 % of the cases: 10 children got a second diagnosis, which could explain the persistent symptoms, 8 children were misdiagnosed. In these 18 children airwaymalacia (n=10) and anatomic abnormalities (n=7) were the most common. In 9.5 % of the cases biopsies changed the diagnosis; in 3 of them ciliary dyskinesia was suspected. In 25 % medication was changed after bronchoscopy. Children without asthma had a RBM of 5,6 µm [SD +/- 1,4]; in children with asthma RBM thickness was 5,11 µm [SD +/- 1,05] and in those with difficult asthma 6,0 µm [SD +/- 1,34] (p=0.49). CONCLUSION: Bronchoscopy showed an important role to reveal underlying causes of persistent symptoms such as airwaymalacia and anatomic abnormalities. In 25% of patients bronchoscopy led to a change in treatment. We found no significant difference in RBM thickness between nonasthmatic, asthmatic children and children with difficult asthma.